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10/053,748	01/18/2002	Lee A. Barford	10980101-1	5462

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AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P. O. Box 7599  
Loveland, CO 80537-0599

EXAMINER

LE, JOHN H

ART UNIT PAPER NUMBER

2863

DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/053,748

Applicant(s)

BARFORD, LEE A.

Examiner

John H Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 11 and 31-38 is/are rejected.
- 7) ☒ Claim(s) 9 and 12-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other:

***Respons to Amendment***

1. This office action is in response to applicant's amendment received on 08/29/2003.

Claims 1 and 32 have been amended.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7, 10-11, and 32-36 are rejected under 35 U.S.C. 102(b) as being anticipate by Booth et al. (USP 5,922,079).

Regarding claim 1, Booth et al. teach an automated analysis and troubleshooting system is provided that identifies potential problems with the test suite, and also identifies probable modeling errors based on incorrect diagnoses (e.g. Col.5, lines 35-40), the method comprising step of evaluating a diagnostic efficacy of the test suite (e.g. Col.9, lines 14-15) using a probability of one or both of a correct diagnosis and incorrect diagnosis by the test suite (e.g. Col.11, lines 15-18, lines 27-29).

Regarding claim 32, Booth et al. teach a test system that that identifies potential problems with the test suite, and also identifies probable modeling errors based on incorrect diagnoses comprising: a processor (e.g. Col.6, lines 66-67); a memory (e.g. Col.7, lines 52-55); and a computer program stored in the memory and executed by the processor, wherein the computer program comprises instructions that, when executed

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by the processor (e.g. Col.6, lines 61-65, Col.7, lines 10-18), implement evaluating the test suite (e.g. Col.9, lines 14-15) using a probability of one or both of a correct diagnosis and incorrect diagnosis to determine the efficacy (e.g. Col.11, lines 15-18, lines 27-29).

Regarding claims 2, 33, Booth et al. teach the evaluation comprises suggesting a test to add to the test suite to adjust an overall test coverage of the test suite (e.g. Col.6, lines 38-45, Col.11, lines 29-35).

Regarding claims 3, 35, Booth et al. teach suggesting a test comprises: creating a simulation database 124 of the test suite; determining a probability of a correct diagnosis (e.g. Col.6, lines 49-54) and a probability of an incorrect diagnosis for the test suite using the database (e.g. Col.9, lines 33-61); and creating a list of suggested tests from the determined probabilities (e.g. Col.10, line 66-Col.11, line 35).

Regarding claim 4, Booth et al. teach each suggested test on the list comprises test coverage (e.g. Col.11, lines 29-31).

Regarding claims 5-7, 10, 36, Booth et al. teach identifying a test to delete from the test suite (e.g. Col.10, line 66-Col.11, line 15), determining a probability of a correct diagnosis for a modified test suite using the database (e.g. Col.11, lines 24-35, lines 67), the modified test suite (e.g. Col.10, lines 66-67) having a selected test removed from the test suite (e.g. Col.11, lines 4-10); computing an efficacy value associated with the selected test using the determined probabilities of a correct diagnosis for the test suite and the modified test suite (e.g. Col.5, lines 49-59); and generating a list of

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deletable tests and associated efficacy values (e.g. Col.9, lines 38-40, Col.11, lines 15-19).

Regarding claims 11, 34, Booth et al. teach the method of evaluating a diagnostic efficacy of the test suite using a probability of a diagnosis (e.g. Col.11, lines 24-64); creating a simulation database 124 of the test suite (e.g. Col.6, lines 49-54); determining a probability of a correct diagnosis and a probability of an incorrect diagnosis for the test suite using the database (e.g. Col.11, lines 15-18, lines 27-29); using the determined a probability to evaluate the test suite (e.g. Col.9, lines 14-15).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Booth et al. (USP 5,922,079) in view of Kanevsky et al. (USP 6,167,352).

Regarding claim 8, Booth et al. fail to teach step of determining a probability for a modified test suite is repeated for a plurality of modified test suites, each modified test suite of the plurality being the test suite having a different selected test removed.

Kanevsky et al. teach step of determining a probability for a modified test suite is repeated for a plurality of modified test suites, each modified test suite of the plurality being the test suite having a different selected test removed (e.g. Col.9, lines 57).

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Regarding claim 32, Kanevsky et al. teach a Monte Carol simulation (e.g. Col.4, lines 40-52, Col.5, lines 18-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include step of step of determining a probability for a modified test suite is repeated for a plurality of modified test suites, each modified test suite of the plurality being the test suite having a different selected test removed as taught by Kanevsky et al. in an automated analysis and troubleshooting system for identifying potential problems with the test suite of Booth et al. for purpose of providing an automated tools for selection of one or more next tests to apply to a device under test (Kanevsky et al., Col.1, lines 9-11).

6. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Booth et al. (USP 5,922,079) in view of Preist et al. (USP 5,808,919).

Regarding claim 38, Booth et al. fail to teach a list of respective tests, the lists being represented in one or both of human readable form or machine readable form.

Preist et al. teach a list of respective tests, the lists being represented in human readable form (e.g. Col.6, lines 30-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a list of respective tests, the lists being represented in human readable form as taught by Preist et al. in an automated analysis and troubleshooting system is provided that identifies potential problems with the test suite of Booth et al. for purpose of providing a diagnostic system for diagnosing the cause of failures of functional tests made on a system under test wherein the system under test

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comprises a plurality of interacting components and wherein the diagnostic system comprises means for interpreting test results according to a set of operations which are involved in carrying out the tests (Preist et al., Col.1, lines 61-67).

***Allowable Subject Matter***

7. Claim 9, 12-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 9, none of the prior art of record teaches or suggests the combination of a method of determining a revision of a test suite of a model-based diagnostic testing system, wherein the method comprising step of evaluating a diagnostic efficacy of the test suite using a probability of a diagnosis, wherein the evaluation comprises identifying a test to delete from the test suite, the deletable test having a minimal effect on an overall diagnostic efficacy of the test suite, wherein identifying a test comprises step of determining a probability of a correct diagnosis for a modified test suite using the database, wherein the modified test suite is the test suite having a selected test removed; computing an efficacy value for the modified test suite using the determined probabilities; and generating a list of deletable tests using the computed efficacy values, wherein step of determining a probability for a modified test suite is repeated for a plurality of modified test suites, each modified test suite of the plurality being the test suite having a different selected test removed, wherein the

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selected test associated with the modified test suite having a low computed efficacy value relative to other modified test suites is the deletable test.

Regarding claim 12, none of the prior art of record teaches or suggests the combination of a method of evaluating a diagnostic efficacy of a test suite of a model based diagnostic testing system, wherein the method comprising step of creating a simulation database of the test suite, wherein creating a simulation database comprises step of simulating an application of the test suite to a device under test, the device under test comprising one or more components; and recording a probable result of the application in the simulation database, the simulation database being represented by a table having a plurality of columns and a plurality of rows, the plurality of columns comprising a component pattern, a test result pattern, and a number of occurrences, wherein the component pattern encodes which component is good or bad, each component of the device under test being represented by a unique position number within the component pattern, wherein the test result pattern encodes which of the tests of the test suite failed or passed, each test in the test suite being represented by a unique position within the test result pattern, wherein the number of occurrences represents a number of times that a given combination of the component pattern and the test result pattern occurred during a simulation, the number of occurrences being an integer greater than or equal to zero, and wherein each row of the plurality of rows corresponds to a different unique pattern of good and bad components.

***Other Prior Art***



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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Sheppard et al. (USP 5,130,936) disclose a test signal evaluating section evaluates inputted test signal data resulting from testing or sensing of some aspect, referred to hereinafter as a parameter, of system A, and produces a plurality of n candidate signals corresponding to n possible diagnoses of, or diagnostic conclusions about the condition of system A, and each candidate signal has an associated level of certainty of representing a valid diagnosis, that is, a diagnosis having associated therewith an acceptable level of confidence that the diagnosis is correct.

#### ***Response to Arguments***

9. Applicant's arguments filed 08/29/2003 have been fully considered but they are not persuasive.

-Applicant argues that the prior did not teach "evaluating a diagnostic efficacy of the test suite using a probability of one or both of a correct diagnosis and an incorrect diagnosis by the test suite".

Booth et al. teach evaluating a diagnostic efficacy of the test suite (e.g. Col.9, lines 14-15) using a probability of one or both of a correct diagnosis and an incorrect diagnosis by the test suite (e.g. Col.11, lines 15-18, lines 27-29).

#### ***Contact Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is (703) 605-4361. The examiner can normally be reached on 9:00 - 5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

John Le

Patent Examiner-Group 2863

October 3, 2003

**BRYAN BUI**  
**PRIMARY EXAMINER**

